



STATE OF WASHINGTON  
**RADIOACTIVE MATERIALS LICENSE**

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Pursuant to the Nuclear Energy and Radiation Control Act, RCW 70.98, and the Radiation Control Regulations, Chapters 246-220 through 246-255 WAC, and in reliance on statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material(s) designated below; and to use such radioactive materials for the purpose(s) and at the place(s) designated below. **This license is subject to all applicable rules and regulations promulgated by the State of Washington Department of Health.**

<b>1. Licensee Name:</b>  PACIFIC ECOSOLUTIONS, LLC	<b>3. License Number:</b>  WN-I0393-1 is amended in its entirety to read as follows:		
<b>2. Address:</b>  2025 Battelle Boulevard Richland, Washington 99352	<table border="1"> <tr> <td data-bbox="927 863 1534 999"> <b>4. Expiration Date:</b>             September 15, 2008         </td> </tr> <tr> <td data-bbox="927 999 1534 1087"> <b>5. Reference Number(s):</b> </td> </tr> </table>	<b>4. Expiration Date:</b>  September 15, 2008	<b>5. Reference Number(s):</b>
<b>4. Expiration Date:</b>  September 15, 2008			
<b>5. Reference Number(s):</b>			

**6. Radioactive Material (element and mass number).**

**7. Chemical and/or Physical Form.**

**8. Maximum quantity licensee may possess at any one time.**

6.A. Any radioactive material Atomic Numbers 1-83.

7.A.1. Solid form (contamination, as received or possessed, on articles or in waste form or incorporated into re-useable items leased to others in the course of business).

2. Liquid form (containing contamination as received or possessed or in waste form).

8.A. 360 curies (13.3 TBq) total, except:

Cobalt 60 - 40 Ci  
(1.48 TBq),

Strontium 90 - 4 Ci  
(148 GBq),

Niobium 94 - 7.5 Ci  
(277.5 GBq),

Cadmium 113m - 2 Ci  
(74 GBq),

Iodine 129 - 0.5 Ci  
(18.5 GBq),

Europium 154 - 2 Ci  
(74 GBq), and



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Lead 210 – 0.1 Ci  
(3.7GBq),

except as specified in License  
Condition 24.

6.B. Special Nuclear  
Material.

7.B.1. Solid form (contamination, as  
received or possessed, on  
articles or in waste form).

2. Liquid form (containing  
contamination as received or  
possessed or in waste form).

8.B. Not to exceed unity formula  
quantities as specified in WAC  
246-220-010 under the  
definition "Special nuclear  
material in quantities not  
sufficient to form a critical  
mass," and except as specified  
in License Condition 24.

6.C. Source material.

7.C.1. Solid form (contamination, as  
received or possessed, on  
articles or in waste form).

2. Liquid form (containing  
contamination as received or  
possessed or in waste form).

8.C. 5,000 kilograms total (1.67  
curies if U-238) except as  
specified in License Condition  
24.

6.D. Any other  
radioactive material,  
Atomic Numbers  
84-103, except  
Special Nuclear  
Material and source  
material.

7.D. 1. Dry packaged radioactive  
material and/or waste.  
2. Liquid form (containing  
contamination as received or  
possessed or in waste form).

8.D. 100 millicuries (3700 MBq)  
total, except Ra-226 – 500  
mCi (18,500 MBq) and except  
as specified in License  
Condition 24.

6.E. Radioactive material  
Atomic Numbers 1-  
83.

7.E. Dry packaged radioactive  
material/waste.

8.E. 50 curies (1.85 TBq) except as  
specified in License Condition  
24.

6.F. Cesium 137.

7.F. Sealed source (Isotope  
Products Laboratories Model  
#HEG-137).

8.F. No single source to exceed 30  
millicuries (1110 MBq).



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- |   |  |   |
|---|--|---|
| 6.G. Cesium 137.  | 7.G. Sealed source (Amersham Model CDC.800).                   | 8.G. No single source to exceed 25 millicuries (925 MBq).           |
| 6.H. Radioactive material, Atomic Numbers 1-103, except Special Nuclear Material and source material. | 7.H. Liquid material or waste; dry packaged material or waste. | 8.H. 2 curies (74 GBq) except as specified in License Condition 24. |

## CONDITIONS

### 9. Authorized use.

All uses shall be in accordance with ATG Richland Operations Manual and in accordance with approved procedures as described in License Condition 22, and must meet the financial surety restrictions as described in License Condition 23. This material shall be onsite for no longer than one (1) year from date of receipt.

- A-D
- (1) For overpacking of dry waste, excluding explosive or highly flammable materials.
  - (2) Incidental to volume reduction of equipment, scrap material, or waste.
  - (3) Incidental to decontamination of equipment or scrap material.
  - (4) For brokered wastes and materials.
  - (5) For storage prior to processing or shipment.
  - (6) Incidental to decontamination of equipment, articles, or facilities at offsite locations. A detailed work plan shall be submitted to the department in writing at least one week in advance of the planned work, and the project shall not begin until written approval is received from DOH.
  - (7) For solidification and/or absorption of liquid waste.
  - (8) For segregation, stabilization, encapsulation, and treatment.



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- (9) For vitrification/thermal treatment of radioactive solids and liquids.
- E. To be stored for decay. Processing of this material shall be as described in AROP 226 "Processing Store for Decay Material." No material containing isotopes with half-lives greater than 170 days may be stored under this license condition. This material shall be stored for no longer than five years from the date of receipt without written permission from the department.
- F. To be used in an Isotope Products Laboratories Model #CD-10-1 Beam Calibration Device for checking response on dose rate instrument.
- G. To be used in a J.L. Shepherd & Associates Model 423 dosimeter calibrator.
- H. For use in the development of new techniques for treating radioactive material or waste in order to reduce the volume of waste that must be disposed. A detailed work plan shall be submitted to the department in writing at least one month in advance of the planned work, and the project shall not begin until written approval is received from DOH.
10. Radioactive material shall be received, stored, and processed at 2025 Battelle Boulevard, Richland, Washington, and may be used at temporary job sites of the licensee within the state of Washington, provided work at temporary job sites is approved by the department prior to the work commencing. This condition does not prohibit use in states under U.S. Nuclear Regulatory Commission (NRC) jurisdiction or in other Agreement States under reciprocity procedures which may be established by the NRC or those states.
11. The licensee shall comply with the provisions of WAC 246-220, "General Provisions;" WAC 246-221, "Radiation Protection Standards;" WAC 246-222, "Radiation Protection - Worker Rights;" WAC 246-232, "Licensing Applicability;" WAC 246-235 "Specific Licenses;" WAC 246-247, "Radiation Protection - Air Emissions;" and WAC 246-249, "Radioactive Waste - Use of the Commercial Disposal Site."
12. The Radiation Safety Officer for this program shall be Curt Cannon. He shall be assisted by dedicated staff that includes (1) a Radiological Engineer or Health Physics Manager, and (2) a Dosimetry Control Clerk. The licensee shall notify the department in writing 30 days prior to any changes in the licensee business structure, and shall notify the department with the appointment of a new Site Manager or RSO.
13. Radioactive material shall be used by, or under the direct supervision of Ray Beasley, Timothy



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A. Burckhard, Scott Call, Curt N. Cannon, Tom Huntley, Dakin Utley, Rob Fredrick, Geoff Hayes, Canyon Hoopes, Michael S. McCargar, Darrell Orth, Joe Schroeder, and/or Rodney Turnidge.

14. The licensee's emergency procedures shall conform to guidelines in the ATG Richland Operations Manual, Section 4.13, and ATG, Inc.'s Emergency Plan, 1994.
15. The transport of licensed material by the licensee, or the delivery of licensed material to a carrier for transport, shall be in accordance with WAC 246-231 "Packaging & Transportation of Radioactive Material."
16. Radioactive material shall be stored outside only within the dedicated bermed storage yard at the southeastern corner of the facility and in the three-sided covered storage area immediately north of and attached to Building 8 (Safglas). Temporary placement of packages (e.g., staging of packages around processing buildings) for a period not exceeding 24 hours is not considered storage. Packaging made of cardboard, fiberboard, or wood, or that contain liquids, shall not be stored outside. Drummed material, packaged in closed metal containers, shall be stored outside only on the concrete pad area within the storage yard and covered with a moisture barrier (e.g., enclosed shed or tarps). Other package types will have their receipt markings inspected every six months and re-marked as necessary.

In the event that building freezer capacity is exceeded, a portable refrigerated trailer shall be used to keep radioactive waste (e.g., animals) frozen for employee health and safety. The portable trailer will normally be stored adjacent to Building #15 (dock area). If needed, with radioactive waste inside, the trailer may be moved north of Building #1 (near the fuel tank) to minimize the distance fuel is transferred. When not in use, the trailer shall be stored at the Building 15 dock area.

Contaminated articles and equipment may be stored outside buildings and uncovered if the contamination is fixed or meets WAC 246-232-140, Schedule D limits for removable contamination. All other equipment and articles shall be covered.

17. The licensee shall conduct an iodine bioassay program in accordance with the criteria set forth in the Washington State Department of Health, Division of Radiation Protection Regulatory Guide 8.20, "Bioassay Program Criteria for I-125 and I-131."
18. The licensee shall conduct a bioassay program as described in the ATG Richland Operations Manual, Section 4.4, "Personnel Monitoring/Bioassay." Tritium monitoring shall meet the criteria set forth in the ANSI N.13.14-1999 "Internal Dosimetry Program for Tritium Exposure-Minimum Requirements."



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19. The licensee shall maintain records of receipt, storage, and transfer of all radioactive material authorized by this license. These records shall be kept for inspection at 2025 Battelle Boulevard, Richland, Washington.
20. The licensee shall notify DOH, Office of Radiation Protection, Waste Management Section of each incoming shipment of radioactive waste, using ATG's Radioactive Material Receipt Record form prior to offloading.
21. The licensee shall conduct an environmental monitoring program as described in the ATG Richland Operations Manual, Section 5.3, "Environmental Monitoring" in AROP 213-217, and as subsequently revised per requirements of the Environmental Radiation Section of the Office of Radiation Protection.

Two copies of the annual (calendar year) environmental report shall be submitted to the department no later than June 30 of each year. As a supplement to the annual report, one aerial photograph of the entire facility, taken within the calendar year of the report, will be submitted to the department. In addition to the two hard copies, the annual report will be submitted in a PC-readable format (e.g., 3.5-inch or CD computer disc) utilizing commercially available software (word processing and spreadsheet programs such as MS WORD and EXCEL).

22. Approved procedures shall be contained in the ATG Richland Operations Procedures (AROP). New or revised procedures shall be reviewed and approved as described in AROP 102, "Revisions to Operational Procedures." Departmental approval of new or revised procedures shall constitute incorporation by reference of those procedures.
23. The licensee shall have and maintain a Washington State Office of Radiation Protection-approved financial surety arrangement adequate to cover decommissioning of the facility and disposal of all radioactive material possessed under the license. This arrangement is described in the 1995 Surety and Decommissioning Plan dated February 15, 1995. The basis for the financial estimates shall be reviewed and adjusted as necessary every two years. This review shall be provided to the state by March 1 of every other year, beginning in 1997. A written verification that limits are not exceeded shall be submitted to DOH, ORP, Waste Management Section by the tenth day of each month, for the previous calendar month. The licensee shall obtain and have in place a standby trust agreement acceptable to the department by September 26, 2003.
24. For radioactive material, the possession limit shall not exceed limits specified in Item 8 of this license, or the limits determined from WAC 246-235-150, Schedule C, "Quantities of radioactive



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materials requiring consideration of the need for an emergency plan for responding to a release," whichever is more restrictive. If more than one radionuclide is possessed, see footnote 1 to Schedule C. A written verification that limits are not exceeded shall be submitted to DOH, ORP, Waste Management Section by the third day of each month, for the previous calendar month.

25. An air emissions monitoring program shall be conducted according to the procedures described in the ATG Richland Operations Manual and in AROP 212, "Air Monitoring." An analysis of annual dose from emissions using the EPA's COMPLY program or an equivalent program shall be performed and submitted to the department within 60 days of the issuance of this license and annually thereafter. Two copies of the annual (calendar year) report shall be submitted no later than June 30 of each year.
26. A. (1) Each sealed source containing licensed material, other than hydrogen 3, with a half-life greater than thirty days and in any form other than gas, shall be tested for leakage and/or contamination at intervals not to exceed six months. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, a sealed source received from another person shall not be put into use until tested.
- (2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source is exempt from such leak tests when the source contains 100 microcuries (3.7 megabecquerels) or less of beta and/or gamma-emitting material, or 10 microcuries (370 kilobecquerels) or less of alpha-emitting material.
- B. The test shall be capable of detecting the presence of 0.005 microcurie (185 becquerels) of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surfaces of the device in which the sealed source is permanently mounted or stored, on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries (or becquerels) and maintained for inspection by the department.
- C. If the test reveals the presence of 0.005 microcurie (185 becquerels) or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be disposed in accordance with department regulations, or to be decontaminated and repaired by persons specifically authorized by the department, the NRC, or an Agreement State to perform such services. A report shall be filed within five days of the test with the department, describing the equipment involved, the test results, and the corrective action taken.



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27. The licensee shall conduct a physical inventory every six months (not to exceed six months) as described in AROP 229, "Source Control and Inventory," to account for all sealed sources received and possessed under the license. The records of the inventories shall be maintained for three years from the date of the last inspection by the department.
28. The licensee shall establish in every contractual obligation relating to radioactive materials the ability to return radioactive materials, processed or unprocessed, to the prior licensed possessor.
29. Radioactive waste shall be packaged in such a manner that waste containers received at the facility do not show:
  - A. Significant deformation.
  - B. Loss or dispersal of contents.
  - C. An increase in the external radiation levels as recorded on the manifest, within instrument tolerances.
  - D. Degradation due to rust or other chemical action that results in a loss of container integrity.
30. Waste shipments shall not be accepted at the facility unless accompanied by the following (a single shipment shall consist of not more than one vehicle or one tractor with legal trailer(s) attached):
  - A. Shipment manifest approved by DOH, Office of Radiation Protection, Waste Management Section.
  - B. Washington State Patrol or Washington State Utilities and Transportation Commission vehicle inspection certificate, or a current visible Washington State 90-day vehicle inspection seal.
  - C. Properly executed current DOH Form RHF-31.
  - D. Upon departmental request, other permits or documentation required under this license, or state or federal law or regulation.
31. Radioactive waste shipments shall not be accepted at the facility if waste onsite exceeds a combined net weight of:





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- 5,000,000 pounds prior to September 1, 2004
- 4,500,000 pounds prior to September 1, 2005
- 4,000,000 pounds prior to September 1, 2006
- 3,500,000 pounds prior to September 1, 2007
- 3,250,000 pounds prior to September 1, 2008 and thereafter.

32. Waste or material received before Allied Technology Group filed for Chapter 11 bankruptcy (February 4, 2002) is considered to be "legacy" waste/material due to the length of time it has been on site, and it shall be removed from the facility before September 1, 2008. The schedule for removal of this waste is as follows:

- By September 1, 2004, legacy waste/material onsite shall not exceed 4,000,000 net pounds. Included in the 4,000,000 pounds is ATG-originated legacy waste which total weight of unprocessed waste not prepared for disposal shall not exceed 1,200,000 pounds.
- By September 1, 2005, legacy waste/material onsite shall not exceed 3,000,000 net pounds. Included in the 3,000,000 pounds is ATG-originated legacy waste which total weight of unprocessed waste not prepared for disposal shall not exceed 900,000 pounds.
- By September 1, 2006, legacy waste/material onsite shall not exceed 2,000,000 net pounds. Included in the 2,000,000 pounds is ATG-originated legacy waste which total weight of unprocessed waste not prepared for disposal shall not exceed 600,000 pounds.
- By September 1, 2007, legacy waste/material onsite shall not exceed 1,000,000 net pounds. Included in the 1,000,000 pounds is ATG-originated legacy waste which total weight of unprocessed waste not prepared for disposal shall not exceed 300,000 pounds.
- By September 1, 2008, all legacy waste/material shall be removed from site.

In the event the above schedule is not met, the difference between the actual weight onsite and the required number (from the schedule above) shall be subtracted from the total weight allowed onsite per Condition 31 until compliance is obtained. In any event, all of the waste/material shall be removed from the facility prior to September 1, 2008.

Example: If onsite legacy waste weight is 3,518,000 lbs on September 1, 2005 (518,000 pounds over the September 1, 2005 value), then the total allowed site weight (per Condition 31) would be reduced to 3,982,000 pounds.



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33. ATG shall not receive animal carcasses and other materials that need refrigeration unless onsite cold storage (i.e.,  $<32^{\circ}\text{F}$ ) is available for all packages requiring cold storage. ATG will maintain such packages in cold storage until thermal processing. Animal carcasses that are not to be processed (i.e., only overpacked for disposal per a licensed disposal site requirement) thermally, may be stored without refrigeration in metal DOT 7A packages or equivalent.
34. The licensee is exempt from WAC 246-221-160(3) (3-hour survey requirement), provided the requirements of the ATG Richland Operations Manual (AROM) and DOH-approved ATG Richland Operating Procedures (AROP's) are adhered to.
35. ATG will begin decommissioning of the facility within twelve months of ceasing operations involving radioactive material, in accordance with applicable regulations.
36. Except as specifically provided by this license, the licensee shall possess and use radioactive material described in Items 6, 7, and 8 of this license in accordance with statements, representations, and procedures contained in the documents listed below, which are incorporated by reference into this license, and the department's "Rules and Regulations for Radiation Protection." The department's "Rules and Regulations for Radiation Protection" shall govern the licensee's statements in applications or letters, unless the statements are more restrictive than the regulations. Except as provided in License Condition 22, any change to the documents listed below shall require departmental approval in the form of an amendment to this license.
  - A. Application and attachments dated October 29, 1993.
  - B. Letter and attachments dated June 2, 1994, RE: Response to Comments on Application Materials.
  - C. Revised Application and attachments dated August 31, 1994, and June 30, 1994.
  - D. 1995 Surety and Decommissioning Plan dated February 15, 1995.
  - E. Allied Technology Group, Incorporated's Emergency Plan dated July 30, 1997.
  - F. Letters and attachments dated January 25, 1999; February 2 1999; and March 4, 1999.
  - G. Letter dated September 30, 1999, with ATG Richland's Operation Manual dated October 5, 1998.



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- H. ATG, Richland Operations Procedure (AROP) #101, dated March 9, 2000.
- I. Letters dated March 27 and April 27, 2000, RE: License amendment request and response to DOH letter.
- J. Letter dated July 18, 2000, RE: Request to possess 20 Ci of Ra-226.
- K. DOH's letter dated March 5, 2001, RE: Administrative changes to ATG amendment
- L. DOH's letter dated April 3, 2001, RE: Implementing the March 5, 2001 letter with the exception of the RHF-31 clause.
- M. DOH's letter dated April 6, 2001, RE: Clarifying DOH's April 3, 2001 letter.
- N. Letter dated August 20, 2001, RE: License amendment request for removal of time restrictions from Condition 9, and adding weight limits to license.
- O. Letter dated September 17, 2001.
- P. Letter dated May 15, 2002: RE: License amendment request for changes to Conditions 12, 13, and 16, add animal carcasses storage requirement, relief from WAC 246-221-160 (3), remove Condition 31, AROM changes, and AROP 102 changes.
- Q. ATG Richland's Operations Manual dated June 14, 2002.
- R. ATG, Richland Operations Procedure (AROP) #102 dated June 14, 2002.
- S. Letters dated June 19 and July 28, 2003, RE: Change company name, add process, add users, add new condition regarding waste onsite when ATG shutdown.

**FOR THE STATE OF WASHINGTON DEPARTMENT OF HEALTH**

Date: September 15, 2003

By Mikel Elsen  
Mikel Elsen, Supervisor  
Waste Management Section

